spacesuit under conditions of excess pressure and reduced ambient pressure place a serious load on the organism, placing constant and prolonged stress on the compensatory mechanisms. During the first 3 days, the general condition of all subjects and the level of their work capacity showed no serious changes. By the 4th and 5th days, shifts appeared in the functional condition of the subjects which were directly related to the magnitude and duration of heat loading.

Differences between subjects depended on different loading conditions. Subject A, whose spacesuit during the entire 7 days was ventilated by cooled air, showed no noticeable strain of the thermoregulatory system. Body temperature was maintained within limits of 36.5 to 37.2°C, average skin temperature ranged from 34.6 to 36.3°C, heart rate in the condition of relative rest did not exceed 80 beats/min, and average non-kidney moisture loss was 2140 g/day. This subject evaluated his sensations as "warm." The post-experimental clinical physiological examination did not reveal any major changes. Observed shifts could be ascribed to general fatigue and the relative 7-day hypodynamia.

In experiments with increased heat load, where almost all of the endogenic heat was removed by means of evaporation of sweat, the stress on the system of body thermoregulation was more pronounced. Non-kidney moisture loss was from 3650 to 4000 g/day. As could be judged from the relatively stable temperature of the body and skin during the first 3 days, it was possible to maintain heat balance of the organism. On the 4th day, however, both subjects (B and C) began to show symptoms of overheating (increases in body temperature and in heart rate). A gradual increase of these phenomena reached its maximum on the 5th day. The experiment with patient B was terminated. After the temperature of the ventilating air of patient C's spacesuit was reduced, his general condition became normal. Body temperature dropped to 37.5°C and the heart rate slowed to between 64 and 72 beats/min. During the next 2 days, body temperature ranged between 37.0 and 37.6°C. The skin temperature slightly exceeded normal, ranging between 35.5 and 36.5°C.

Apparently the considerable change in the thermal balance of subjects B and C on the 4th day of the experiment was due to exhaustion of the thermoregulatory

mechanisms, which by then had been under stress for some time. The immediate cause was perspiratory dysfunction; even with the unlimited amount of water available, on the 4th and 5th days subject C exhibited a reduction in non-kidney moisture loss which could have caused increased overheating.

The post-experimental examination of patient B revealed a pronounced fatigue and a hypostatic edema of the lower extremities. The edema of the lower extremities was probably due to the condition fact that this subject was obliged to sleep with his feet down, to increased permeability of the capillaries, and to disrupted electrolyte balance caused by increased non-kidney fluid loss. Patient A, who was permitted greater freedom of movement, who was able to rest and sleep in a horizontal position with his legs raised, and who was exposed to a smaller heat load, showed no edema. Hydrostatic weighing of patient A showed that the non-fatty component of the body increased only by 350 g. During the time of the experiment in conditions of high heat load, patient C, who was permitted to sleep and rest in a horizontal position, showed no apparent edemas. However, following the experiment, the water

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component of his body had increased by 1000 g. During the final day of the experiment, when the thermal loading was substantially reduced, urine production increased from 500-740 to 1525 g day (compared to a daily urine production in subjects A and B during the experiment of approximately 663 to 758 g/day). This great diuresis in patient C apparently indicated the appearance of hidden edemas, which began to dissipate when the thermal load was reduced. Following the experiment, subject C showed fatigue and vascular-vegetative instability. Within 3 days, all these symptoms had disappeared.

Thus, in experiments where all of the heat exchange of the subject was accomplished by evaporation of sweat, thermal balance could be maintained for 3 or 4 days, after which symptoms of overheating appeared. After 4 to 5 days, the thermoregulatory mechanisms became exhausted and intensive overheating appeared. When 25 to 40% of the endogenic heat of the body was removed by use of cooled air, the experimental conditions could

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000515820011-8"

ACC NR: AT7011646

be endured for a longer period of time, despite some stress on the thermoregulatory mechanism. The possibility of non-acclimatized subjects surviving for 7 days in a spacesuit in a depressurized spaceship cabin under conditions of relative rest was demonstrated. Average energy expenditurer, under conditions of limited movements and unlimited water intake, ranged between 1900 and 2400 kcal/day. Orig. art. has: 2 figures and 2 tables. [ATD PRESS: 5098-F]

SUB CODE: 06 / SUBM DATE: none

Card 11/11

GOLOVKIN, M. E.

Soderzhanie ustroistv avtoblokirovki v zimnikh usloviiakh. [Maintenance of the block system device under winter conditions]. Moskva, Gos. transp. zhel-dor. izd-vo, 1939. 21 p.

DLC: TF630.G73

SO: SOVIET TRANSPORTATION AND COMMUNICATIONS, A BIBLIOGRAPHY, Library of Congress Reference Department, Washington, 1952, Unclassified.

GOLOVKIN, M. K.

Ustroistvo i soderzhanie avtoblokirovki. [Installation and maintenance of the block system]. Moskva, Transzheldorizdat, 1939. 264 p. illus.

SD: SOVIET TRANSPORTATION AND COMMUNICATIONS, A BIBLIOGRAPHY, Library of Congress Reference Department, Washington, 1952, Unclassified.

BRYLNYEV, A.M., laureat Stalinskoy premii, inzhener; GAMBURG, Ye.Yu., inzhener, retsenzent; GOLOVKIN, N.K., inzhener, retsenzent; KAZAKOV, A.A., kandidat tekhnicheskikh nauk, retsenzent; KUT'IN, I.M., dotsent, kandidat tekhnicheskikh nauk, retsenzent; LEONOV, A.A., inzhener, retsenzent; SEMENOV, N.M., laureat Stalinskoy premii, inzhener, retsenzent; CHERNYSHEV, V.B., inzhener, retsenzent; VALUYEV, G.A., inzhener, retsenzent; MEYTAN, N.A., laureat Stalinskoy premii, inzhener, retsenzent; NOVIKOV, V.A., dotsent, retsenzent; PIVOVAROV, A.L., inzhener, retsenzent; POGODIN, A.M., inzhener, retsenzent; KHODOROV, L.R., inzhener, retsenzent; PIVOVAROV, A.L., inzhener, retsenzent; POGODIN, A.M., inzhener, retsenzent; KHODOROV, L.R., inzhener, retsenzent; SHUPLOV, V.I., kandidat tekhnicheskikh nauk, retsenzent; KLYKOV, A.F., inzhener, retsenzent; YUDZON, D.M., tekhnicheskiy redaktor; VERINA, G.P., tekhnicheskiy redaktor.

[Technical handbook for railroad men] Tekhnicheskii spravochnik zheleznodorozhnika. Vol. 8. [Signaling, central control, block system, and communication] Signalizatsiia, tsentralizatsiia, blokirovka, sviaz'. Red. kollegiia A.F.Baranov [i dr.] Glav.red. E.F.Rudoi. Moskva, Gos. transp. zhel-dor. izd-vo, 1952. 975 p. (Card 2) (MLRA 8:2)
(Railroads--Signaling) (Railroads--Communication systems)

BARANOV, A.F., redaktor; BIRYUKIN, D.D., redaktor; VAKHNIN, M.I., otvetstvennyy redaktor toma, professor, doktor tekhnicheskikh nauk; VEDENEEV, B.N., redaktor; IVLIYEV, I.V., redaktor; MOSHCHUK, I.D., redaktor; RUDOY, Ye.F., glavnyy redaktor; SOKOLINSKIY, Ya.I., redaktor; SOLOGUBOV, V.N., redaktor; SHILENTSKIY, V.A., redaktor; ALYEROV, A.A., inzhener; ANASHKIN, B.T., inzhener; AFANAS'YEV, Ye.V., laureat Stalinskoy premii, inzhener; BELENKO, K.M., dotsent; BORISOV, D.P., dotsent, kandidat tekhnicheskikh nauk; ZHIL'TSOV, P.N., inzhener; KBAR, N.R., inzhener; IL'YENKOV, V.I., dotsent, kandidat tekhnicheskikh nauk; KAZAKOV, A.A., kandidat tekhnicheskikh nauk; KRAYZMER, L.P., kandidat tekhnicheskikh nauk; KOTLYARENKO, N.F., dotsent, kandidat tekhnicheskikh nauk; MAYZHEV, P.V., professor, kandidat tekhnicheskikh nauk; MARKOV, M.V., inzhener; NELEPETS, V.S., dotsent, kandidat tekhnicheskikh nauk; NOVIKOV, V.A., dotsent; ORLOV, N.A., inzhener; PETROV, I.I., kandidat tekhnicheskikh nauk; PIVKO, G.M., inzhener; POGODIN, A.M., inzhener; RAMLAU, P.N., dotsent, kandidat tekhnicheskikh nauk; ROGINSKIY, V.N., kandidat tekhnicheskikh nauk; RYAZANTSEV, B.S., laureat Stalinskoy premii, dotsent, kandidat tekhnicheskikh nauk; SHABSKIY, A.A., inzhener; FEL'DMAN, A.B., inzhener; SHASTIN, V.A., laureat Stalinskoy premii, inzhener; SHUR, B.I., inzhener; GONCHUKOV, V.I., inzhener, retsenzent; NOVIKOV, V.A., dotsent, retsenzent; AFANAS'YEV, Ye.V., laureat Stalinskoy premii, retsenzent;

[Technical handbook for railroad men] Tekhnicheskii spravochnik zheleznodorozhnika. Vol. 8. [Signaling, central control, block system, and communication] Signalizatsiia, tsentralizatsiia, blokirovka, sviaz'. Red. kollegiia A.F.Baranov [i dr.] Glav.red. E.F.Rudoi. Moskva, Gos. transp. shel-dor. izd-vo, 1952. 975 p.

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GOLOVKIN, M.K., inzhener, sostavitel'; RAKITO, B.I., redaktor; MATSEYEV-SKAYA, Yu.M., tekhnicheskiy redaktor.

[Handbook for electricians and installers of railroad signal central control and block systems] Pamiatka elektromekhaniku i monteru ETsB. 4-e, perer. izd. Moskva, Gos. transp. zhel-dor. izd-vo, 1953. 86 p. [Microfilm] (MLRA 7:11)
(Railroads--Signaling)

KUT'IN, I.M., kandidat tekhnicheskikh nauk; GOLOVKIN, M.K., inzhener; STEPANOV, N.M.; NAKITO, E.I., redaktor; KHITROV, P.A., tekhnicheskiy redaktor

[A guide for the electrician and wireman of the automatic railroad signal block system] Rukovodstvo elektromekhaniku i monteru avtoblokirovki. Izd. 4-oe, perer. i dop. Moskva, Gos. transp. zhel-dor. izd-vo 1956. 303 p. (MLRA 9:11)

1. Russia (1923- U.S.S.R.) Ministerstvo putey soobshcheniya. (Railroads--Signaling--Block system)

AFANAS'EV, Yevgeniy Vladimirovich; GOLOVKIN, Mikhail Kapitanovich; MARENKOVA, G.I., inzh., red.; BOBROVA, Ye.N., tekhn.red.

[Operation of signaling, centralized control, and block systems in the railroad transportation system] Ekspluatatsiia ustroistv STsB na zheleznodorozhnom transporte. Moskva, Gos. transp. zhel-dor.izd-vo, 1958. 266 p. (MIRA 11:12)
(Railroad--Signaling)

GOLOVKIN, M. P. (ENGR)

USSR/Engineering - Welding, Bridges May 52

"Experiment of Fabricating Welded Spans With Blind Walls," M. P. Golovkin, Engr, Glavmostostroy, MPS

"Avtogen Delo" No 5, pp 16-20

Describes construction and fabrication technology of all-welded spans in sections 23 and 33.6 m long. Mass production was arranged, for the 1st time, at one of MPS bridge plants in 1950. Discusses deformations in welding process and presents numerous conclusions and suggestions.

217T41

GOLOVKIN, M. P.

"Fabrication of All-Welded Girder Bridges with Solid Walls" (Avto. Delo, 1952, 23, May, p. 16)

This refers to the same development as that described in ref. 33 above. The practical difficulties encountered in welding, particularly control of distortion, are described, together with the jigging and welding procedures evolved to overcome them.

GOLOVKIN, Mikhail Pavlovich; NAUMOV, A.F., retsenzent; NAUMKIN, A.N., inzh., retsenzent; RAMODIN, V.N., inzh., retsenzent; SOLDATENKOV, A.G., retsenzent; YEFIMOV, G.P., kand.tekhn.nauk, red.; MEDVEDEVA, M.A., tekhn. red.

[Design and operation of motor operated loaders] Ustroistvo i ekpluatatsiia avtopogruzchikov. Moskva, Vses.izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 77 p. (MIRA 14:12)

1. Abkhazian A.S.S.R. Statisticheskoye upravleniye.
(Abkhazia—Statistics)

GOLOVKIN, M.P.

Electric loaders with one and two ton capacity. Mul.tekh.-ekon. inform. Gos.nauch.-issl.inst.nauch.i tekh.inform. no.1:71-74 '63. (MIRA 16:2)

(Fork lift trucks)

GOLOVKIN, M.P.

Self-discharging railroad cars for industrial transportation. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. no.3:60-65 '63. (MIRA 16:4)

(Railroads—Freight cars)

GOLOVKIN, M.P.

Electric-battery loaders with three ton capacity. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. 16 no.5: 61-63'63. (MIRA 16:7)
(Loading and unloading—Equipment and supplies)

GOLOVKIN, M.P.

The KhIIT self-unloading hopper cars. Biul.tekh.-ekon.inform.Gos. nauch.-issl.inst.nauch.i tekh.inform. 16 no.6:71-75 '63. (MIRA 16:8)

(Railroads--Freight cars)

GOLOVKIN, M.P.

The EP-501 battery-powered five-ton capacity loader. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. 16 no.8: 63-64 '63.

In the Scientific Council for Industrial Transportation and the Mechanization of Loading and Unloading Operations. 66-67 (MIRA 16:10)

GOLOVKIN, M.P.

Loading and unloading equipment for loose materials. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. 16 no.10: 81-88 '63. (MIRA 16:11)

GOLOVKIN, M.P.

Universal battery-powered ten-ton-capacity loader. Biul.tekh.-ekon. inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. 17 no.1:85-87 '64. (MIRA 17:2)

GOLOVKIN, N.P.

The ESh-281 storage-battery stacker. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.2:67-68 '64. (MIRA 17:6)

GOLOVKIN, M.P.

Importance for the national economy of the narrow-gauge railroad transportation. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.3:81-82 '64. (MIRA 17:9)

GOLOVKIN, M.P.

The ESh-182 electric fork-lift truck. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 18 no.2:55-56 F '65. (MIRA 18:5)

ACC NR: AP6006551 (A) SOURCE CODE: UR/0335/65/000/005/0003/0006

AUTHOR: Golovkin, N. (Professor); Loginov, L.

ORG: Leningrad Technologic Institute for the Refrigeration Industry (Leningradskiy tekhnologicheskiy institut kholodil'noy promushlennosti)

TITLE: Proper conditions for the refrigeration of meat

SOURCE: Myasnaya industriya SSSR, no. 5, 1965, 3-6

TOPIC TAGS: food processing equipment, food preservation

ABSTRACT: The aim of the investigation was to determine the length of the refrigeration period for meat as a function of the temperature and the air flow rate. For convenience and accuracy of the observations, the experiments were carried out on a model material which was in the form of a sphere and whose thermophysical properties were close to those of meat. Use was made of agar models with diameters of 0.055, 0.065, 0.080, 0.090, and 0.100 meters. The refrigeration was carried out at air temperatures of 0, -4, -6, -14, and -19°C at flow rates of 0.2, 1.75, 2.5, 3.8, and 6.9 meters/sec. The experimental data for spheres of different diameters at various temperatures are listed in an extensive table, and a curve shows the change in the mean temperature of the sphere as a function of the temperature and the flow rate of the cooling medium, at the moment when the cryoscopic temperature is reached on the

Card 1/2

UDC: 637.5:542.46.004.13

ACC NR: AP6006551

surface of the sphere. In general, the experimental data were found to agree well with the equation:

$$Nu^* = 2.708\,(Re)^{0.422} \qquad (12)$$

where, the correlation coefficient $\rho = 0.9893$, and the mean quadratic deviation $\sigma_{\Delta} = 0.0199$. For best results, the rate of motion of the cooling medium, at negative temperatures from -4 to -6°C, should lie within the limits of 1-2 meters/sec. Orig. art. has: 12 formulas, 4 figures, and 1 table.

SUB CODE: 06, 13/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 002

Card 2/2

GOLOVKO, N.

Eight million roubles into the fund of theseven-year plan. Sov. profsoiuzy 16 no.14:46 J1 '60. (MIRA 13:8)

1. Predsedatel' zavkoma stekol'nogo zavoda "Dagestanskiye ogni," poselok Ogni, Dagestanskoy ASSR.
(Ogni (Daghestan)--Glass manufacture--Technological innovations)

GAVRILENKO, Ye.; GOLOVKIN, N.

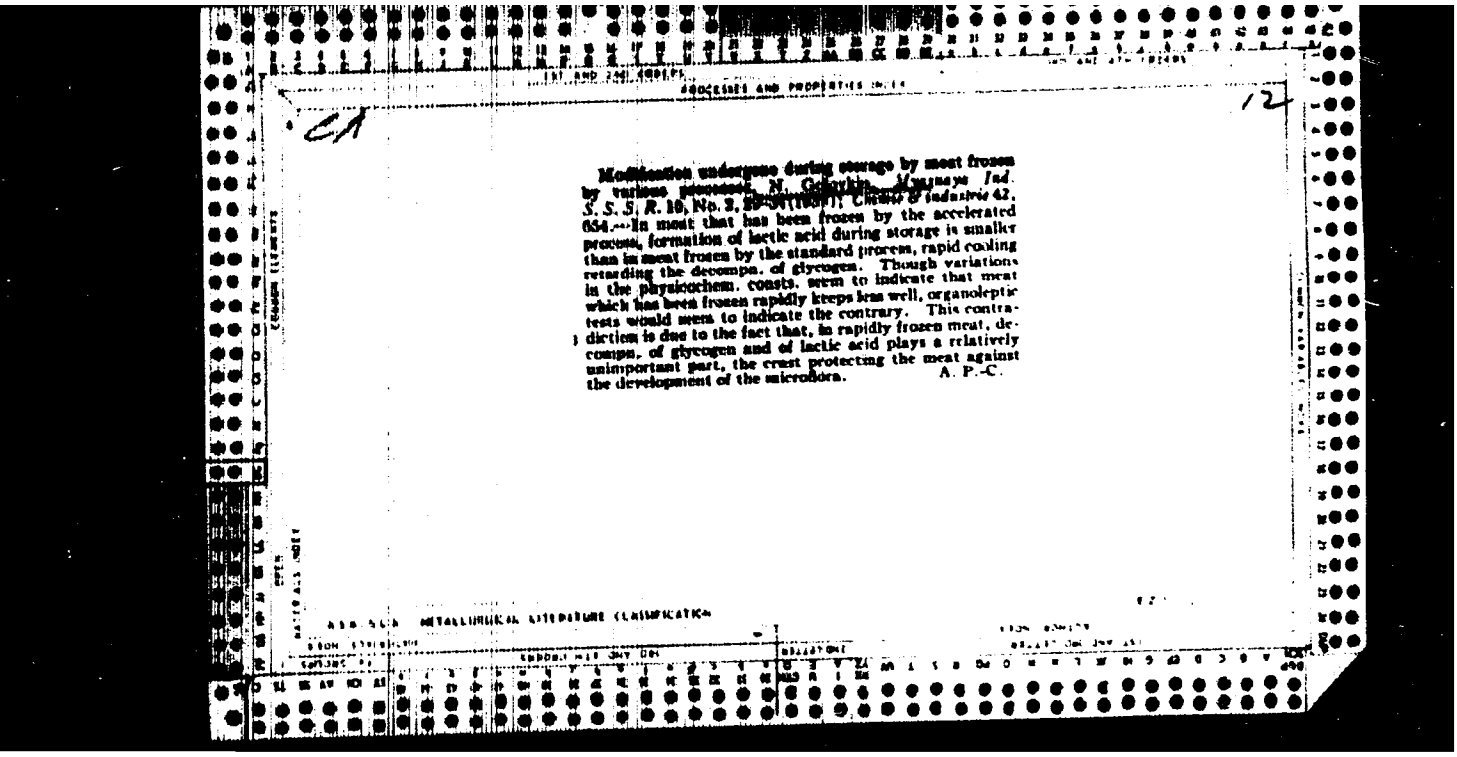
Attachment for microfilming. Sov.foto 21 no.11:30-31 N '61. (MIRA 14:11)

(Microphotography)

GOLOVKIN, N., prof.; KOSHKIN, N.; BATURINA, L.

Studying the conditions of food product storage in a chamber with dynamic insulation. Miss.ind.SSSR 33 no.2:47-51 '62. (MIRA 15:5)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti (for Golovkin, Koshkin). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlennosti (for Baturina).
(Leningrad—Cold storage warehouses) (Food—Preservation)



Modification undergone during storage by meat frozen by various processes. N. Golovkin. *Myasnaya Ind. S. S. S. R.* 10, No. 3, [illegible]; *Chem. & Industries* 42, 654.—In meat that has been frozen by the accelerated process, formation of lactic acid during storage is smaller than in meat frozen by the standard process, rapid cooling retarding the decompn. of glycogen. Though variations in the physicochem. consts. seem to indicate that meat which has been frozen rapidly keeps less well, organoleptic tests would seem to indicate the contrary. This contradiction is due to the fact that, in rapidly frozen meat, decompn. of glycogen and of lactic acid plays a relatively unimportant part, the crust protecting the meat against the development of the microflora. A. P.-C.

GOLOVKIN, N.

TA 1/49T68

[redacted]/Medicine--Fungi Apr/May/Jun 48
Medicine--Ultraviolet Rays

"Effect of Ultraviolet Rays on the Growth of Mold," N. Golovkin, Cand Tech Sci, 6 pp

"Kholoshil Tekh" No 2

Describes successes obtained by using ultraviolet radiation to combat mold.

[redacted] 1/49T68

GOLOVKIN, N.

USSR/Medicine - Mold Fungi
Medicine - Radiation
Oct/Dec 48

"Influence of Ultraviolet Rays on Mold Fungi," N. Golovkin, Cand Tech Sci, Leningrad Inst of Refrigeration and Milk Ind, 6 pp

"Kholodil' Tekh" No 4

PA 56/49T72

Made tests to determine action of spores of pen. glaucum, asp. niger, mucor, and Rhizopus nigr. at relatively low above-zero temperatures (between 2° and 4° C), i.e., at the actual temperatures at which many refrigerated, rapidly spoiling products are stored. Found ultraviolet rays were very

56/49T72

USSR/Medicine - Mold Fungi (Contd) Oct/Dec 48

effective in killing spores when used with low above-zero temperatures. Also tested effects of minus temperatures, repeated exposures, etc.

56/49T72

GOLOVKIN, N. A.

"Refrigeration Engineering of Food Products," Pishchepromizdat, Moscow, 1951

GOLOVKINA, N. A.

"Use of Ultraviolet Rays in the Processing and Storing of Food Products," Myas. Ind. SSSR, No.2, 1952

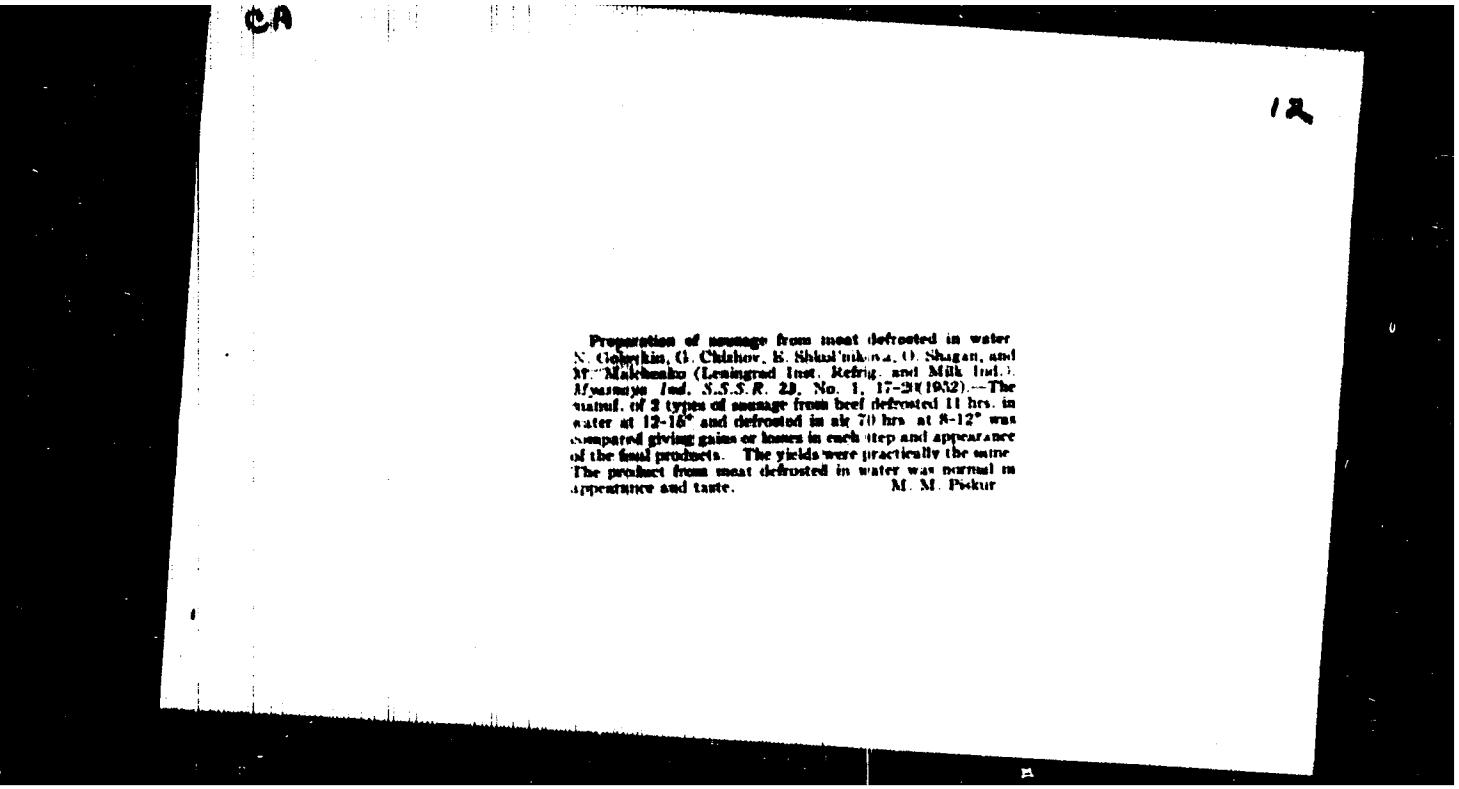
1. AREF'TEVA, M.; GOLOVKIN, N.

2. USSR (600)

4. Butter

7. Losses in sweet cream butter during prolonged storage. Mol. prom. 13 no. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.



CA

12

Preparation of sausage from meat defrosted in water. N. Golovkin, G. Chizhov, K. Shkul'nikova, O. Shagan, and M. Makhonko (Leningrad Inst. Refrig. and Milk Ind.). *Myasnaya Ind. S.S.S.R.* 23, No. 1, 17–21(1952).—The qualit. of 2 types of sausage from beef defrosted 11 hrs. in water at 12–16° and defrosted in air 70 hrs. at 8–12° was compared giving gains or losses in each step and appearance of the final products. The yields were practically the same. The product from meat defrosted in water was normal in appearance and taste. M. M. Pekur

GOLOVKIN, N. A.

Dissertation: "Technology of Meat Refrigeration." Dr Tech Sci, Leningrad Technological Institute of the Refrigeration Industry, Leningrad, 1953. (Referativnyy Zhurnal-Khimiya, No 9, Moscow, May 54)

SO: SUM 318, 23 Dec 1954

GOLOVKIN, N.; CHIZHOV, G.; SHKOL'NIKOVA, E.; SHAGAN, O.

Defrosting meat in liquid media. Myasnaya Ind. S.S.S.R. 24, No.2, 5-8 '53. (MLRA 6:4)
(CA 47 no.15:7690 '53)

1. Leningrad Inst. Refrig. and Dairy Inds.

CHIZHOV, G., doktor tekhnicheskikh nauk; GOLOVKIN, N., kandidat tekhnicheskikh nauk; SHKOL'NIKOVA, Ye., kandidat tekhnicheskikh nauk.

Natural losses in meat freezing and storage. Khol.tekh. 30 no.4:27-34 O-D '53. (MLRA 7:3)

(Cold storage) (Meat--Preservation)

GOLOVKIN, N.A.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Golovkin, N.A. Chizhov, G.E. Shkol'nikova, Ye. P. Kraf'tova, V.N. Shagun, F.S.	"Development of the Elements of the Technology of Food Products' Refrigeration"	Leningrad Institute of Refrigeration and Food Industry

SO: W-30604, 7 July 1954

GOLOVKIN, N.A.; CHIZHOV, G.B.; SHKOL'NIKOVA, Ye.F.; SHAGAN, O.S.

Theory of the defrosting of meat. Trudy LTIKHP 5:64-68 '54.
(Meat, Frozen) (MIRA 11:3)

GOLOVKIN, M.A., kand. tekhn. nauk, dots.

Physical and biochemical changes in meat during its refrigeration and storage. Trudy LTIKHP 5:69-77 '54. (MLRA 1T:3)
(Meat--Preservation)

GOLOVKIN, N.; SHAGAN, O.; ALYAMOVSKIY, I.

Examination of the processes of meat cooling. Mias. ind. SSSR 25 no.1:12-16 '54. (MLRA 7:3)

1. Leningradskiy institut kholodil'noy i molochnoy promyshlennosti. (Meat--Preservation)

GALANIN, N., professor; GOLOVKIN, N., doktor tekhnicheskikh nauk.

Use of ultra-violet rays in the food industry. Khol.tekh. 31 no.2:57-59 Ap-Je '54. (MLRA 7:7)

1. Chlen-korrespondent Akademii meditsinskikh nauk (for Galanin)
(Ultraviolet rays) (Food industry)

GOLOVKIN, Nikolay Alekseyevich, doktor tekhnicheskikh nauk, professor; [illegible], professor, doktor tekhnicheskikh nauk; SHKOL'NIKOVA, Yelizaveta Fedorovna, kandidat tekhnicheskikh nauk; SHCHEKOTOV,P.A., redaktor; MARKH,A.T., professor, retsenzent; KHATAGUROVA,F.V., professor, retsenzent; KHRISTODULO,D.A., professor, retsenzent; BABIN,F.P., dotsent, retsenzent; IL'CHENKO,S.G., dotsent, retsenzent; CHOGOVADZE,Sh.K., dotsent, retsenzent; ROSLOV,G.I., tekhnicheskiy redaktor

[Technology of refrigerating food products] Kholodil'naia tekhnologiia pishchevykh produktov. Moskva, Gos.izd-vo torgovoi lit-ry, 1955. 375 p. (MLRA 9:3)
(Food--Preservation) (Refrigeration and refrigerating machinery)

GOLOVKIN, N.A., doktor tekhnicheskikh nauk; SHAGAN, O.S., inzhener; ALYAMOVSKIY, I.O., inzhener.

Effect of the speed of air on the time required for cooling meat. Trudy LTIKHP 11:134-140 '56. (MLRA 10:6)

1. Kafedra kholodil'noy tekhnologii.
(Meat--Preservation)

[redacted] doktor tekhnicheskikh nauk; SHAGAN, O.S., inzhener; ALYAMOVSKIY, I.G., inzhener.

Natural losses during the cooling of meat. Trudy LTIKHP 11:141-148 '56. (MLRA 10:6)

1. Kafedra kholodil'noy tekhnologii.
(Meat--Preservation)

GOLOVKIN, N.A.

GOLOVKIN, N.A., doktor tekhnicheskikh nauk; CHERNYAK, B.I., inzhener.

Ultraviolet irradiation of milk. Trudy LTIKHP 7:29-34 '55.
(MLRA 10:9)

1. Kafedra kholodil'noy tekhnologii i kafedra fizicheskoy i kolloidnoy khimii.
(Ultraviolet rays) (Milk--Sterilization)

GOLOVKIN, M., doktor tekhnicheskikh nauk; SHAGAN, O.; ALYAMOVSKIY, I.

Dependence of meat refrigeration time on air circulation rate. Mias. ind.SSSR 26 no.1:15-19 '55. (MLRA 8:5)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti.
(Meat--Preservation) (Refrigeration and refrigerating machinery)

GOLOVKIN, N.; SHAGAN, O.; ALYANOVSKIY, I.

Variation in natural losses of meat during refrigeration. Mias. ind. SSSR. 26 no.6:11-15 '55. (MLRA 9:2)

1.Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti.
(Meat--Preservation)

GOLOVKIN, N.A., doktor tekhnicheskikh nauk; CHIZHOV, G.B., doktor tekhnicheskikh nauk; ARKF'YEVA, M.M.; ALYAMOVSKIY, I.G.; SHAGAN, O.S.

Natural losses of meat during long storage. Trudy LTIKHP 10:22-32 '56. (MIRA 10:6)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti.

(Mutton--Storage)

Golovkin, N.A

GALANIN, N.P.; GOLOVKIN, N.A., professor.

Use of ultraviolet rays in the food industry. Trudy LTIKHP 10:45-52 '56. (MLRA 10:6)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (fro Galanin).
2. Voyenno-meditsinskaya akademiya imeni S.M. Kirova (for Galanin).
3. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti (for Golovkin).

(Ultraviolet rays) (Food--Bacteriology)

GOLOVKIN, N.A.

USSR /Chemical Technology. Chemical Products and Their Application

Food Industry

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 33056

Author : Golovkin N. A., Shagan O.S., Alyamovskiy I.G.

Inst : Leningrad Technological Institute of the Refrigeration Industry

Title : Natural Losses on Cooling of Meat

Orig Pub: Tr. Leningr. tekhnol. in-ta kholodil'n. prom-sti, 1956, 11, 141-148

Abstract: Drying of meat was studied under different conditions of cooling. The computation method that was utilized made it possible to confirm, on the basis of a limited number of weighings, the exper-

Card 1/2

USSR /Chemical Technology. Chemical Products and Their Application I-32

Food industry

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 33056

imental data on drying secured over the entire period of cooling. As a result of this work a relationship has been found to exist between duration of cooling of the sides, velocity of air flow and haunch-thickness of the sides. The optimal air flow velocity during cooling of sides has been determined. Advantages of a two-stage cooling over a single-stage cooling have been demonstrated.

Card 2/2

GOLOVKIN, N., professor; CHIZHOV, G., professor; ARKF'YEVA, M.; ALYAMOVSKIY, I.; [redacted], O.

Natural losses in frozen mutton in lengthy storage. Khol.tekh.33 no.2: 25-30 Ap-Je '56. (Meat, Frozen) (MIRA 9:9)

GOLOVKIN, N.A., prof., doktor tekhn.nauk; CHERNYAK, B.I., inzh.

Effect of irradiated milk as a medium upon the activity of lactics bacteria. Trudy LTIKHP 13:3-6 '57.
(MIRA 13:6)

1. Kafedra kholodil'noy tekhnologii i fizicheskoy i kolloidnoy khimii Leningradskogo tekhnologicheskogo instituta kholodil'noy promyshlennosti.
(MILK--BACTERIOLOGY)

GOLOVKIN, N. A.

Golovkin, N. A., Alyamovskiy, I. G., Pershina, Mrs. L. I., and Shagan, G. S. (Leningrad Technological Institute of the Refrigerating Industry): "The Mechanics and Chemistry of Muscular Tissue in the Refrigeration of Meat and Fish" /English - 7 pages/

report presented at the International Inst. of Refrigeration (IIR), Annual Meetings of Commissions 3,4, and 5, Moscow, 3-6 Sep 1958.

GOLOVKIN, N.

GOLOVKIN, N., doktor tekhn.nauk, prof.; PERSHINA, L., doktor tekhn.nauk,prof.

Processing and storage of crayfish under refrigeration [with summary in English]. Khol. tekh. 35 no.1:26-27 Ja-F '58. (MIRA 11:2)

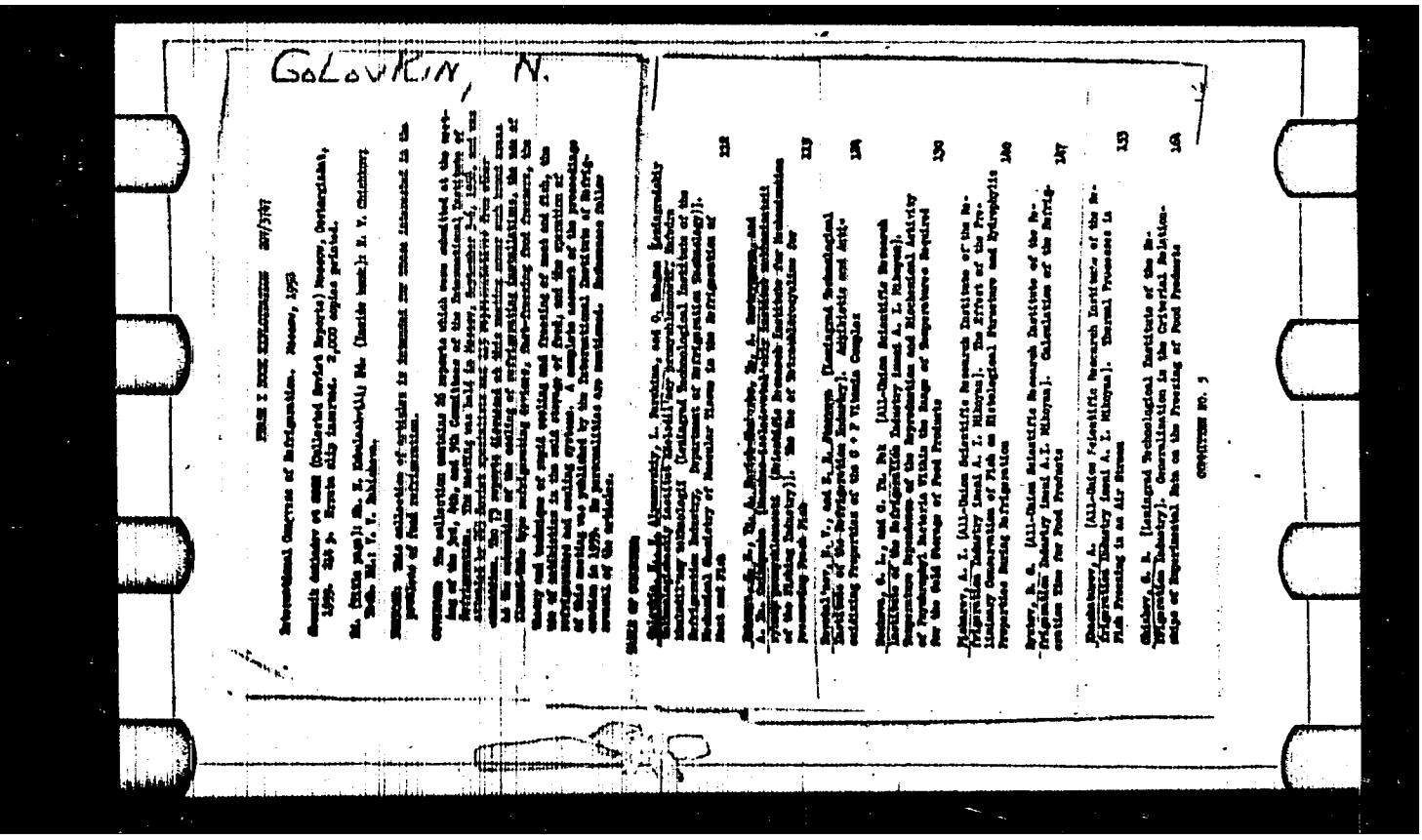
(Crayfish)

GOLOVKIN, N., prof.; SHAGAN, O., insh.

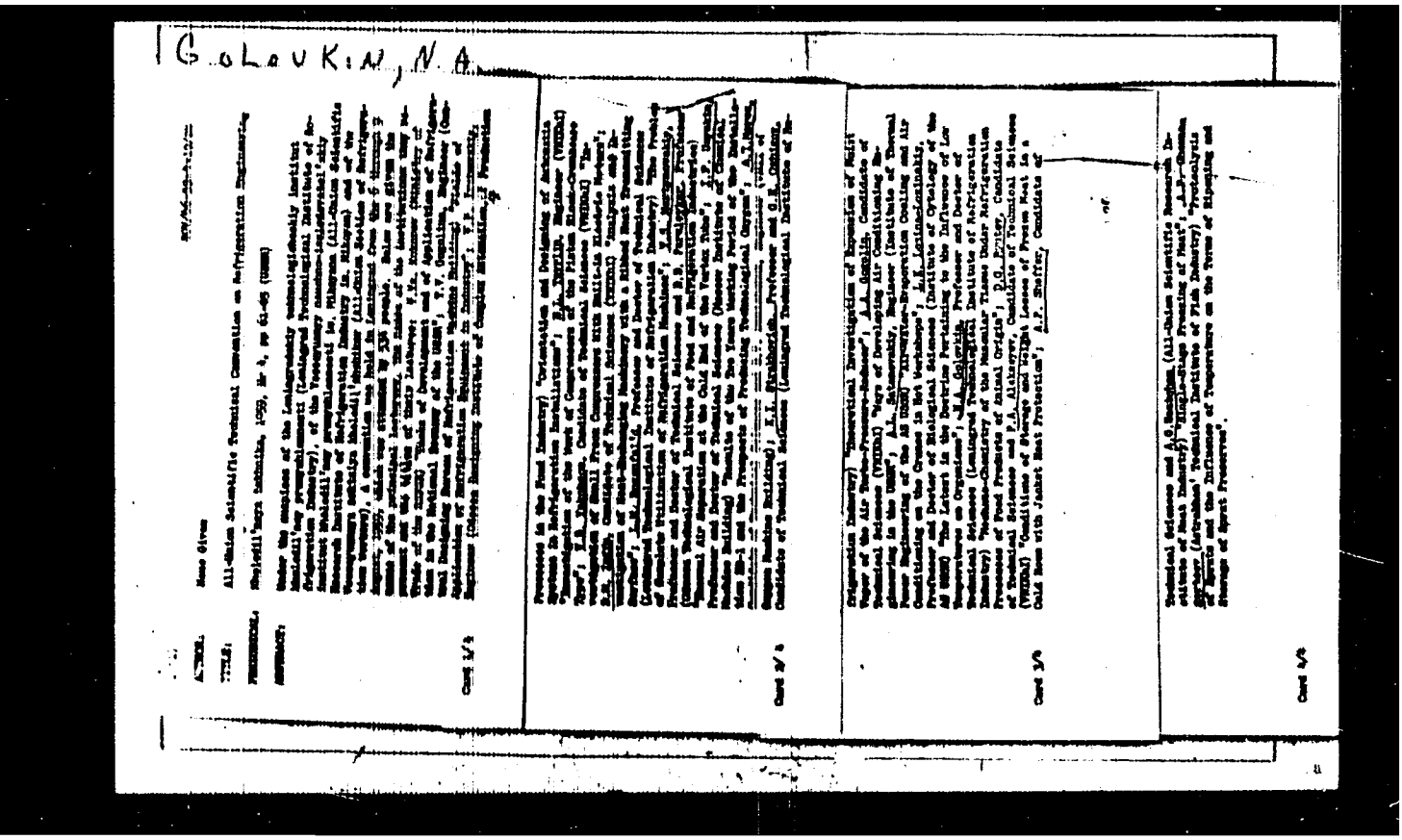
Change in mechanical and chemical properties of muscular tissue during refrigeration of meat [with summary in English]. Khol. tekh. 35 no.6:42-44 N-D '58. (MIRA 12:1)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti.

(Meat, Frozen)



GoLovkin, N.



GOLOVKIN, N.A.

GOLOVKIN, N. A.

"Ultraviolet Irradiation as a Factor Prolonging the Storage Life of Foods."

Report submitted for the 10th Intl. Refrigeration Congress, Copenhagen, 19 August - 2 September 1959.

GOLOVKIN, N.A., prof.; KOSHKIN, N.; BATURINA, L.

Cooling of meat in air supersaturated with moisture. Mias.prom. SSSR 31 no.3:52-53 '60. (MIRA 13:9)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti (for Koshkin). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlennosti (for Baturina).
(Meat, Frozen)

RADYL'KES, I.S., prof., doktor tekhn.nauk; BUKHTER, Ye.Z., inzh.; VEYNBERG, E.S., kand.tekhn.nauk; VOL'SKAYA, L.S., inzh.; GERSH, S.Ya., prof., doktor tekhn.nauk [deceased]; GUREVICH, Ye.S., inzh.; DANILOVA, G.N., kand.tekhn.nauk; YEFIMOVA, Ye.V., inzh.; IOFFE, D.M., kand.tekhn.nauk; KAN, K.D., kand.tekhn.nauk; LAVROVA, V.V., inzh.; MEDOVAR, L.Ye., inzh.; ROZENFEL'D, L.M., prof., doktor tekhn. nauk; TKACHEV, A.G., prof., doktor tekhn.nauk; TSYRLIN, B.L.; SHUMELISHSKIY, M.G., inzh.; SHCHERBAKOV, V.S., inzh.; YAKOBSON, V.B., kand.tekhn.nauk; GOGOLIN, A.A., retsenzent; GUKHMAN, A.A., retsenzent; KARPOV, A.V., retsenzent; KURYLEV, Ye.S., retsenzent; LIVSHITS, A.B., retsenzent; CHISTYAKOV, F.M., retsenzent; SHEYNDLIN, A.Ye., retsenzent; SHERSHEDINOV, G.A., retsenzent; PAVLOV, R.V., spetsred.; KOBULASHVILI, Sh.N., glavnyy red.; RYUTOV, D.G., zam.glavnogo red.; GOLOVKIN, N.A., red.; CHIZHOV, G.B., red.; NAZAROV, B.A., glavnyy red.izd-va; NIKOLAYEVA, N.G., red.; EYDINOVA, S.G., mladshiy red.; MEDRISH, D.M., tekhn.red.

[Refrigeration engineering; encyclopedic reference book in three volumes] Kholodil'naia tekhnika; entsiklopedicheskii spravochnik v trekh knigakh. Glav.red. Sh.N.Kobulashvili i dr. Leningrad, Gostorgizdat. Vol.1. [Techniques of the production of artificial cold] Tekhnika proizvodstva iskusstvennogo kholoda. 1960. 544 p. (MIRA 13:12)

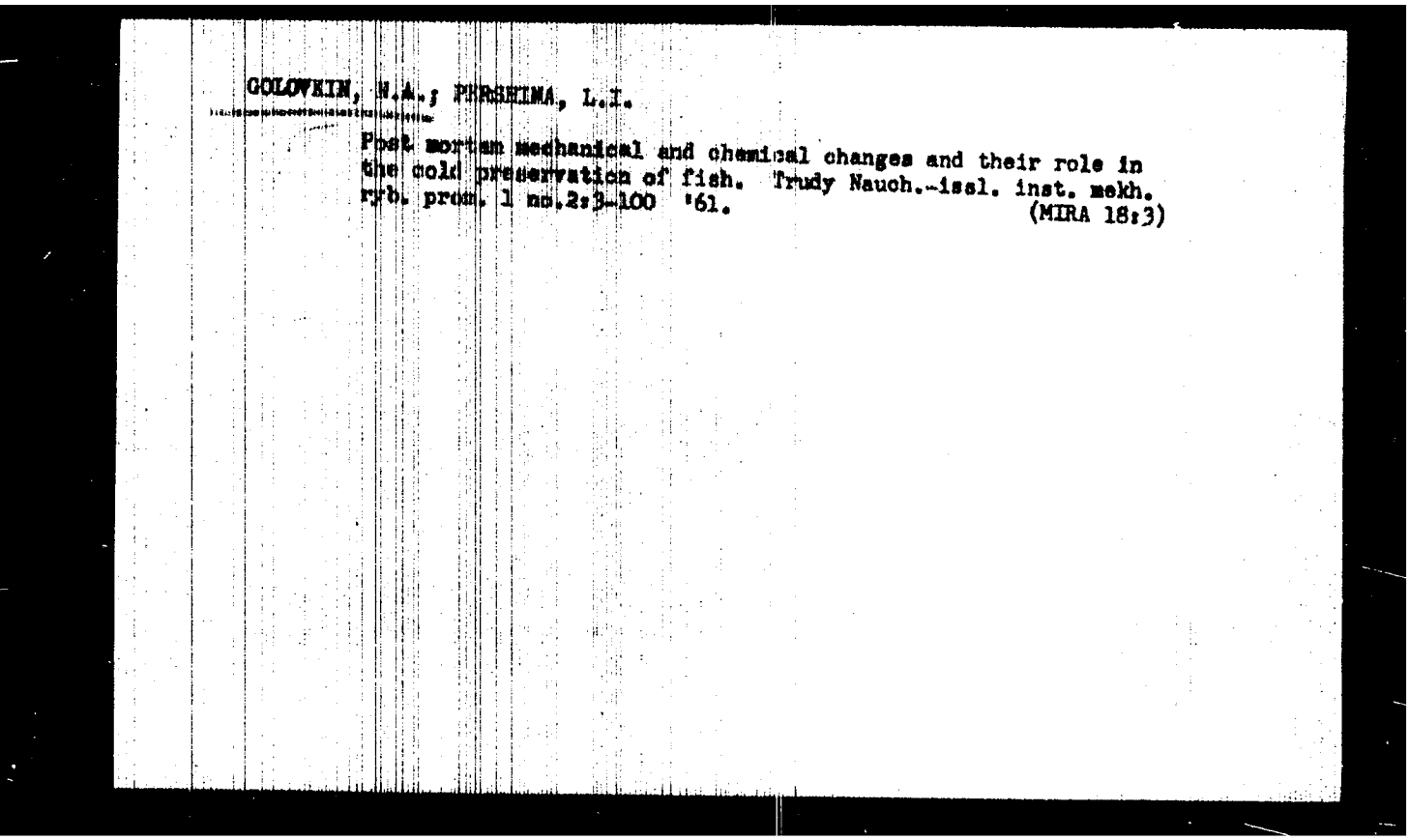
(Refrigeration and refrigerating machinery)

ALEKSANDROV, S.V.---(continued) Card 2.
1. Vsesoyuznyy institut rasteniyevodstva (for Sechkarev, Lizgunova, Brezhnev, Gazenbush, Meshcherov, Filov, Tkachenko, Kazakova, Krasochkin, Levandovskaya, Shebalina, Syskova, Makasheva, Ivanov, Martynov, Girenko, Ivanova, Shilova). 2. Gribovskaya ovoshchnaya selektsionnaya opytnaya stantsiya; chleny-korrespondenty Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Alpat'yev, Solov'yeva). 3. Deystvitel'nyy chlen Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Brezhnev).
(Vegetables--Varieties)

GOLOVKIN, N.A., doktor tekhn.nauk, prof.; PERSHINA, L.I., inzh.

Effect of the partial freezing out of water on the quality of fish and their storage life. Khol. tekh. 38 no. 1:35-38 Ja-F '61. (MIRA 14:4)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti (for Golovkin). 2. Nauchno-issledovatel'skiy institut mekhanizatsii rybnoy promyshlennosti (for Pershina).
(Fish, Frozen)



GOLOVKIN, N.A.; PYRKHINA, L.I.

Post mortem mechanical and chemical changes and their role in the cold preservation of fish. Trudy Nauch.-issl. inst. mekh. ryb. prom. 1 no.2:3-100 '61. (MIRA 18:3)

GOLOVKIN, N.A.; PERSHINA, L.I.; VOSKOBOY, A.V.

Volatile reducing substances as a fish quality index during its cold storage. Izv. vys. ucheb. zav.; pishch. tekh. no. 2:161-168 '61. (MIRA 14:5)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti. Kafedra obshchey i kholodil'noy tekhnologii.
(Fish—Preservation)

GOLOVKIN, N.A., doktor tekhn.nauk, prof.; STRAKHOVICH, K.K., inzh.; TSVETKOV, A.I., inzh.

Problem of apple storage under sub-freezing temperatures. Khol.-tekh. 39 no.2:32-33 Mr-Ap '62. (MIRA 15:4)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti.

(Apples--Storage)

COLOVKIN, N. A.; MASLOVA, O. V.

"Biophysical studies of the state of fish muscle during chilling and cold storage."

Report presented at the 11th International Congress of Refrigeration, (IIR), Munich, West Germany, 27 Aug-4 Sep 63.

GOLOVKIN, N.A., prof.; CHIZHOV, G.B., prof.; IL'CHENKO,S.G.,kand.tekhn.nauk, retsenzent; SHEFFER,A.P.,kand.tekhn.nauk,retsenzent; MASLOVA,Ye.F., red.; MAMONTOVA,M.M.,tekhn.red.
[Refrigeration technology for food products]Kholodil'naia tekhnologiia pishchevykh produktov. 2., dop. i perer. izd. Moskva, Gosgorgizdat, 1963. 240 p. (MIRA 16:3)
(Food—Preservation)

GORBATOV, Vasiliy Matveyevich, dots.; MANERBERGER, Aleksandr Abramovich, prof.; GOLOVKIN, N.A., prof., doktor tekhn. nauk, retsenzent; AZARKH, Z.Sh., inzh., retsenzent; KOSSOVA, O.N., red.; ZARSHCHIKOVA, L.N., tekhn. red.

[Use of refrigeration in the meat industry] Primenenie kholoda v miasnoi promyshlennosti. Moskva, Pishcheprom-izdat, 1963. 286 p. (MIRA 16:5)
(Meat—Preservation)
(Refrigeration and refrigerating machinery)

SOLOVKIN, N.A.; PERKEL', R.L.; STRAKHOVICH, K.K.

Methods for determining apple viability in case of cold storage. Izv. vys. ucheb. zav.; pishch. tekh. no.4:144-148 '63. (MIRA 16:11)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti, kafedra obshchey i kholodil'noy tekhnologii.

GOLOVKIN, N. A.; NOZDRUNKOVA, I. R.

Determination and role of calcium and magnesium cations during meat refrigeration and storage. Izv. vys. ucheb. zav.; pishch. tekh. no. 2:35-37 '64. (MIRA 17:5)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti, kafedra obshchey i kholodil'noy tekhnologii.

[illegible]

ACC NR: AP6016105 SOURCE CODE: UR/0095/65/000/011/0008/0010

AUTHOR: Golovkin, [illegible]; Zubov, [illegible]; [illegible], R. M.; Telegin, L. G.

ORG: none

TITLE: Possibilities of using auger anchors for laying pipe in Western Siberia

SOURCE: Stroitel'stvo truboprovodov, no. 11, 1965, 8-10

TOPIC TAGS: pipeline, reinforced concrete

ABSTRACT: The authors discuss geologic and climatic problems involved in laying gas pipe in Western Siberia. One of the important problems in laying pipe of large diameter is to get rid of the inherent positive bouyancy. In the Soviet Union this is commonly done by using annular or saddle-type reinforced concrete ballast weights of up to three tons. It is calculated that the ballast required for 1 km of 1020-mm gas pipeline is about 870 tons of reinforced concrete. The cost in material and labor comes to more than [illegible] rubles. Recent innovations in ballast methods include water-loading, [illegible] and the use of reinforced concrete shells. The first two methods require temperatures above the freezing point of water, and the third is still in the experimental stage. The authors propose the use of auger-type anchors such as are widely used in the United States for giving negative bouyancy to gas pipelines. [illegible] is described and the conditions under [illegible] are described. Research and development work is now being done in the Soviet Union to solve the various problems involved in the use of auger anchors for laying gas pipe. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 13, 11 / SUBM DATE: none UDC: 621.643.002.2

Card 1/1 [illegible]

GOLOVKIN, N.A.; ZUBOV, N.M.; IKONNIKOV, R.M.; TELEGIN, L.G.

Possibility of using screw anchors in laying pipelines in Western Siberia. Stroi. truboprov. 10 no. 11:8-10 N '65.
(MIRA 18:12)

AUTHORS: Golovkin, N. N., Ignat'yev, O. S. SOV/30-58-9-37/51

TITLE: Development of Researches on Highly Molecular Compounds (Razvitiye issledovaniy po vysokomolekularnym soyedineniyam) In the Presidium of the Council for Co-Ordination of Scientific Work of the Academies of Sciences of the Union Republics and the Branches (V Prezidiume Soveta po koordinatsii nauchnoy deyatel'nosti akademiy nauk soyuznykh respublik i filialov)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 9, pp. 101 - 104 (USSR)

ABSTRACT: The session of the presidium of the council took place on June 21st. A.V.Topchiyev, Vice-President of the AS USSR, stressed the importance of these researches in order to fulfil the resolutions of the plenary session of the TsK KPSS in May. He mentioned that the scope of researches at present carried out is insufficient. In order to prepare a prospective plan for the years 1959 - 1965 a special committee was set up. 42 main trends for researches on the subject of highly molecular compounds were fixed. The chairman of the scientific council V.A.Kargin, Member, Academy of

Card 1/5

Development of Researches on Highly Molecular Compounds. SOV/30-58-9-37/51
In the Presidium of the Council for Co-Ordination of Scientific Work
of the Academies of Sciences of the Union Republics and the Branches

Sciences, USSR, reported about the activities of the council. Further addresses were given by:
M.F.Nagiyev, Vice-President of the AS Azerbaydzhan SSR, on the urgency to intensify researches on the field of technological phenomena.
S.D.Mekhtiyev, Head of the Petroleum-Institute of the AS Azerbaydzhan SSR, on the efforts in the field of petroleum chemistry.
V.I.Nikitin, Head of the Institute of Chemistry of the AS Tadshikskaya SSR, requested assistance in training scientific cadors.
A.Ye.Arbuzov, Chairman of the Kazan' Branch of the AS USSR, mentioned the problem of proper assignment of scientific staff.
Kh.U.Usmanov, Head of the Institut khimii rastitel'nykh veshchestv Akademii nauk Uzbekskoy SSR(Institute of Chemistry of Vegetable Materials of the AS Usbekskaya SSR), outlined the tasks of Usbekistan scientists in connection

Card 2/5

with the rich supply of cellulose and natural gases.
R.D.Obolentsev, Chairman of the Bashkirskiy filial Akademii nauk SSSR (Bashkiriya Branch of the AS USSR), spoke about the urgency to intensify researches on the sulphurous petroleum deposits of Bashkiriya.
N.F.Yermolenko, Member, Academy of Sciences, Belorusskaya SSR, stressed the problems of development of the chemical industry of his country in connection with her deposits of turf and petroleum.
Yu.Yu.Matulis, President of the AS Litovskaya SSR, remarked that Lithuania (Litva) is rich in vegetable raw materials, thus has to itensify her research on this field.
S.A.Giller, Corresponding Member, AS Latviyskaya SSR, informed the assembly of the intention of Latvia (Latviya) scientists to carry out research on the use of natural polymers.
A.T.Kyll', Head of the Institute of Chemistry of the Academy of Sciences, Estonskaya SSR, mentioned problems in connection

Development of Researches on Highly Molecular Compounds. SOV/30-58-9-37/51
In the Presidium of the Council for Co-Ordination of Scientific Work
of the Academies of Sciences of the Union Republics and the Branches

with the use of the slates of Estonia (Estoniya).
G.M.Shchegolev, Head of the Institute of Heat Energetics of the Academy of Sciences, Ukrainian SSR, recommended to lay more stress upon the use of coal and other solid fuels for the production of polymeric material.

Card 4/5

Development of Research on Highly Molecular Compounds

In the Presidium of the Council for Co-ordination of Scientific Work of the Academies of Sciences of the Union Republics and the Branches

I.P. Bardin, Member, Academy of Sciences, USSR, Vice-President of the AS USSR, pointed out the importance of coal and wood as raw materials for the production of polymeric material. At last the chairman of the Council, A. N. Nesmeyanov, Member, Academy of Sciences, USSR, addressed the assembly and said that the whole scientific staff has to be employed for the development of chemistry. But it is necessary to recruit new scientists for the staff in order to avoid a removal of scientists from tasks likewise important. A resolution was passed to ask the Presidium of the AS USSR for its assistance in training adequate scientific personnel.

GOLOVKIN, P.; BIBIKOV, N.

Economize metal in installing electric wiring fittings in apartment houses and buildings serving cultural and public needs. Na stroi.Mosk. 2 no.10:29-31 O '59. (MIRA 13:2)

1. Glavnyy inzhener Energosbyta Mosenergo (for Golovkin).
2. Starshiy inzhener tekhnicheskogo otdela Energosbyta Mosenergo (for Bibikov).

(Electric wiring)

FRENKEL', S.M.; KAPLAN, A.A.; PERSPELITSKIY, S.G.; GOLOVKIN, P.I.; KNYAZEV, P.I.

Discussion of the use of PPV wires. Prom.energ. 11 no.8:24-26 Ag '56. (MLRA 9:11)

1. Glavelektromontazh Ministerstva stroitel'stva (for Frenkel'). 2. Moskovskoye proyektno-eksperimental'noye otdeleniye Gosudarstvennogo Politekhnicheskogo instituta Tyazhpromelektroproyekta (for Kaplan). 3. Elektrootdel instituta "Mosproyekt" (for Perspelitskiy). 4. Gorodskaya elektroinspektsiya Energosbyta Mosenergo (for Golovkin and Knyazev).

(Electric wire, Insulated)

GOLOVKIN, P.I.

Participation of Moscow power engineering workers in all-Union competitions for the best suggestions for saving electric power. Prom. energ. 16 no.2:50-51 F '61. (MIRA 14:3)

1. Predsedatel' komissii sodeystvia Vsesoyuznomu konkursu pri Energosbyte Mosenergo.
(Moscow—Electric industry workers)
(Electric power)

GOLOVKIN, P.I., inzh.

Factors complicating work in the establishment of an optimum power factor. Prom. energ. 18 no.6:36-38 Je '63. (MIRA 16:7)

(Electric power distribution)

GOLOVKIN, P.I., inzh.

Regulation of the electric power load graph over twenty-four hour period. Prom.energ. 19 no. 2:5-6 F '64. (MIRA 17:5)

SOROKIN, Ye.G.; GOLOVKIN, P.S.

Centrifugal casting of cast-iron sewage pipes on multirotor machines "Lipetsk-2." Biul.tekh.-ekon.inform.Gos.nauch.-issl.-inst.nauch. i tekh.inform. no.6:17-19 '62. (MIRA 15:7)
(Iron founding—Equipment and supplies)

18(5), 25(1) SOV/137-59-7-13/15

AUTHOR: Znamenskiy, P.D., Candidate of Technical Sciences, Il'benskeyn, I.M., Candidate of Technical Sciences Golovkin, B.V., Engineer

TITLE: Resistance Seam-Butt Welding of Pipes by Higher Frequency Currents

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 7, pp 42-45 (USSR)

ABSTRACT: The authors present the results of an experimental investigation of the influence of the welding current frequency on the quality of pipe welding seams at different welding speeds. The experiments were conducted on a pipe welding machine of type 30-102 of the Moskovskiy trubnyy zavod (Moscow Pipe Plant) designed for welding tubes with a diameter of up to 102 mm at a maximum welding speed of 60 m/min at a nominal capacity of the rotary transformer of 500 kva. The machine received power from a converter unit consisting of two basic generators, and an auxiliary exciter. The electrical circuit diagram is shown in

Card 1/4

Resistance Seam-Butt Welding of Pipes by Higher Frequency Currents

Fig. 2. The authors remarked that the experimental installation had a number of deficiencies, the analysis of which is beyond the scope of this paper. These deficiencies must be eliminated when developing new converters. The test results depend to a considerable degree on the conditions of the tubes to be welded. Thermal treatment improves considerably the quality of the electrically welded tubes. When welding tubes of 33 x 1.5 mm at a speed of 40 - 50 m/min, a frequency increase to 150 cycles improved considerably the strength of the welding seam. At a speed of 30 m/min a change of the current frequency did not show any essential influences. Increasing the frequency to 300 cycles at welding speeds of 40 - 60 m/min did not produce a noticeable improvement of welding seam strength. When welding tubes of 73 x [illegible].5 mm at a speed of 30 - 50 m/min, an increase of the welding seam strength is observed when increasing the frequency to 100 cycles. A further frequency increase reduced the

Card 3/4

Resistance Seam-Butt Welding of Pipes by Higher Frequency Currents

strength of the seam. A considerable strength reduction of the seam was observed when welding tubes of 45 x 3 mm at a speed of 40 m/min at a frequency increased to more than 100 cycles. At welding speeds of 20 - 30 m/min, a frequency change within the range of 50 - 200 cycles did not have an essential influence on the strength of the seam. Welding tubes of 102 x 2.0 mm showed that, at a speed of 20 - [illegible] m/min, an increase of the current frequency to 150 cycles does not produce a considerable change of the welding seam strength. But already at a speed of 30 m/min, some reduction of the strength was noticed, at a frequency higher than 100 cycles. Consequently, when welding tubes on the machine type 20 - 102 with a speed of 30 - 60 m/min, the best results, according to technological tests, were obtained at frequencies ranging from 100 - 150 cycles. This conclusion does not mean in any way that a further increase of the frequency is not to be made in principle. There are no founda-

Card 3/4

SOV/133-59-7-13/15

Resistance Seam-Butt Welding of Pipes by Higher Frequency Currents

tions for assuming that a frequency increase to 300 - 350 cycles will lead to a reduction of the welding seam strength as this was observed in the authors' experiments. The authors present the test results in 9 graphs and 1 table. The experiments further showed that a continuous frequency control is not necessary. It is sufficient to increase frequency range at intervals of 50 cycles. It may be assumed that the application of welding transformers with small electrical losses will facilitate the application of converters with an uncontrolled frequency of 150 cycles. There are 1 photograph, 1 circuit diagram, 9 graphs, 1 table and 3 references, 2 of which are Soviet and 1 English.

ASSOCIATION: UkrNITI Moskovskiy trubnyy zavod (Moscow Pipe Plant)

Card 4/4

SOV/133-59-9-17/31

AUTHORS: Klyamkin, N.L., Candidate of Technical Sciences, Manegin, Yu.V., Konyushenko, A.T., Golovkin, R.V. and Protopopov, N.N., engineers

TITLE: Mastering of the Production of Tubes by Atomic Hydrogen Welding

PERIODICAL: Stal', 1959, Nr 9, pp 821-827 (USSR)

ABSTRACT: In view of some difficulties in piercing tube billets from some alloy steels and a high consumption of metal in subsequent rolling, the production of tubes from such steels by atomic hydrogen welding of strip should be more economical. After investigations of the process by TsNIIChM and the Moscow Tube Works on an industrial plant for the automatic atomic hydrogen welding of tubes was developed. Conditions of stability of welding arc on the diameter of electrodes and their holders supplying hydrogen - table 1; the dependence of electric parameters of the arc on the rate of the supply of hydrogen and the distance between the centres of electrodes - Fig 3 and 4 respectively. The installation for the production of alloy tube consists of a modified tube forming stand of the type 10 - 60, six arcs automatic welding head with a control panel, welding transformers and a system of power,

Card 1/2

2

Mastering of the Production of Tubes by Atomic Hydrogen Welding

gas and water conduits (Fig 5). The welding head - Fig 6; scheme for automatic control - Fig 7. Welding conditions for steels 1Kh18N9, Kh18N11B, EI533 and 50KhFA - Table 2; results of testing of welded tubes - Table 3; macro and microstructure of welded seam - Fig 8 and 9 respectively. The results of testing of welded tubes indicated that their properties correspond to standards for seamless stainless tubes (GOST 5543-50). There are 9 figures and 3 tables.

ASSOCIATIONS: TsNIIChM
Moskovskiy trubnyy zavod (Moscow Tube Works)

GOLOVKIN, R.V.

66611

~~25(1)~~ 18.7200 SOV/29-59-10-8/27

AUTHORS: Karamyshev, F., Head of the Central Laboratory of the Moscow Tube Works, Golovkin, R., Head of the Welding Laboratory

TITLE: Welding in Helium

PERIODICAL: Tekhnika molodeshi, 1959, Nr 10, p 8 (USSR)

ABSTRACT: In this article the authors describe a new method of producing tubes, by means of protective gas welding. An automatic tube welding machine was installed at the Moscow Tube Works (Fig). Tubes are produced from cold-rolled metal stripa. Their width depends on the projected tube profile. The tube-shaped strip is conveyed to the welding device (figure on the left). The abutting edges are welded together in the light-arc, oxidation by the outer air being prevented by means of the protective gas emerging from a jet. After leaving the range of the light-arc, the edges are welded together. Until recently, argon was used as protective gas. The quality of the welding seams obtained by means of the argon arc process is absolutely satisfactory. The method is also universal, because it may be used for the welding of tubes made from various types of steel, non-ferrous metal, and their alloys. However, in spite of the advantages it offers, the method also has a great dis-

Card 1/2

66611

Welding in Helium

SOV/29-59-10-8/27

advantage, viz., it is too slow. This is due to the low ionization potential of argon. In order to increase the efficiency of the tube welding machine, experiments were carried out with 2 and 3 arcs as well as with protective gases of different compositions. The best results were obtained by means of helium. With amperage being equal, the electric capacity of the arc and its thermal effect in helium is considerably increased, by which operation is accelerated. Although helium is considerably more expensive than argon, the total costs of tube production are lower by 8% as a result of accelerated operation. There are 2 figures.

ASSOCIATION: Moskovskiy trubnyy zavod
(Moscow Tube Works)

Card 2/2

68591

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AUTHORS: Konyushenko, A. T., Golovkin, R. V., Konstantinov, V. I., and Polyakov, Ya. M.

TITLE: Manufacture of Tantalum Tubes

PERIODICAL: Tsvetnyye metally, 1960, Nr 1, pp 60-67 (USSR)

ABSTRACT: The authors have developed a new and efficient technique for fabricating metal tubes, among them tantalum tubes. The process consists in butt-welding strip and forming it into tubes; these are welded by argon arc in an existing reconstructed automatic electric welding tube mill and subsequently passed through rolling mills (Fig 1). The dimensions of the original strip are determined by the size of the tube required and the possibility of its manufacture in a given plant. The application of clamps and directing instruments in rolling prevents scrap due to strip coming out in a crescent-shaped form. Cutting of the strip edges is carried out with disc shears. Pieces of strip were butt-welded by argon arc welding in the modernized automatic machine "ADS-1000-2" by constant direct current (experiments on the welding of tantalum strip with alternating current have not given

Card 1/3

Manufacture of Tantalum Tubes

satisfactory results). Tungsten rods (VT-15) containing 1.5% thorium oxide were used as electrodes. Saturation of tantalum with nitrogen and oxygen increases the hardness and brittleness of the metal. To prevent this effect the welding zone (the pool of molten metal and the joint both sides of the strip along a length of 50 to 70 mm) was protected by inert gas (argon containing 0.23% nitrogen and 0.05% oxygen) (see Table 1). The strip can be annealed either before butt-welding or after welding and cleaning of the joint. Annealing was carried out by soaking for 1.1/2 hours in an electric vacuum furnace of the TsEP-273 type, at a temperature of 1200°C with a residual pressure of 10^{-4} mm Hg. The weight of the charge was 30 to 40 kg. Prior to being charged into the furnace the strip was thoroughly washed with acetone. The annealed strip had a UTS (σ_b) of 51 kg/mm^2, a percentage elongation (δ) of 24.8% and a Rockwell hardness (H_{RB}) of 75; the above mechanical properties show that although not fully annealed, the strip was annealed sufficiently to be formed into tube billets (Table 2). In the continuous forming of the tantalum strip the shaping

68591
S/136/60/000/01/012/021
E091/E255

Manufacture of Tantalum Tubes

rolls used were graduated and had groove profiles as shown in Fig 2. Argon was applied to the internal surface of the joint through the end of a hollow rod which was fixed between the fifth and sixth shaping stands. Argon was also applied to the external surface of the joint, by a supplementary nozzle (Fig 3). The best results in the welding of tantalum tubes were obtained when the welding procedures indicated in Table 3 were applied. Table 4 shows the test results on welded tube specimens at various annealing temperatures. In Table 5 the best rolling method for tantalum tubes is given. Tubes of niobium, tantalum, cobalt and their alloys have been fabricated by the new technique. There are 3 figures, 5 tables and 3 Soviet references.

ASSOCIATIONS: Moskovskiy trubnyy zavod (Moscow Tube Works (first two authors)) Moskovskiy elektrolampovyy zavod (Moscow Electric Lamp Works (last two authors))

Card 3/3

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AUTHOR: Golovkin, R., Director of the Welding Laboratory of the Moscow Tube Mill

TITLE: Tubes Are Welded by Means of High-frequency Current

PERIODICAL: Tekhnika molodeshi, 1960, No. 6, p. 34

TEXT: The new welding technique by means of high-frequency current is described. This technique is being introduced into production by the collective of the Moskovskiy trubnyy zavod (Moscow Tube Mill) in collaboration with the collective of the Leningradskiy institut tokov vysokoy chastoty imeni professora V. P. Vologdina (Leningrad Institute of High-frequency Currents imeni Professor V. P. Vologdin). The scheme suggested in 1946 by Professors S. F. Bogoslovskiy and A. V. Ulitovskiy was taken as a basis. The welding device is fed by means of a high-frequency current of 450,000 cycles. On the Fig. (p. 34 bottom left) the high-frequency welding of tubes is shown. By means of this technique it is possible to produce tubes from non-ferrous metals, from their alloys, as well as from high-alloy steels of from 10 to 102 mm diameter and a wall thickness of from 1

Card 1/2